

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor : Masanori HASHIMOTO
U. S. Patent No. : 7,436,784
Serial No. : 10/773,769
Issued : October 14, 2008
For : RESILIENT PACKET RING...

February 26, 2009

Certificate of Corrections Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REQUEST FOR A CERTIFICATE OF CORRECTION

SIR:

We request a Certificate of Correction under 35 U.S.C. §254, to correct the following typographical errors below:

Column 26, line 43, which was incorrectly listed as “~~that the other node can~~” Please change the same to read: ~~--that the other~~ bridge node can--.

Column 27, line 29, which was incorrectly listed as “~~and another staff on node,~~” Please change the same to read: ~~--and another~~ station node,--; line 42, which was incorrectly listed as “~~plurality nodes an RPR MAC~~” Please change the same to read: ~~--plurality of~~ bridge nodes an RPR MAC--.

Column 28, line 31, which was incorrectly listed as “~~a determining operable to~~” Please change the same to read: ~~--a determining~~ unit operable to--.

Attached, please find a copy of the pages from the Patent with column 26, 27 and 28, and a copy of the Response to Office Action November 27, 2007, which was filed on March 10, 2008 where the claims were amended.

This was due to an error made by the USPTO.

Any fee due as a result of this paper, may be charged to Deposit account No. 50-1290.

Respectfully submitted,

/Pedro C. Fernandez/

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Docket No.: FUJY 20.954(100794-00557)

What is claimed is:
 1. A resilient packet ring (RPR) network system in a RPR network, comprising:

- a plurality of station nodes terminating media access control (MAC) frames; and
- a plurality of bridge nodes forwarding MAC frames, in which both of the plurality of station nodes and the plurality of bridge nodes are located in one or more ringlets,

wherein each of the station nodes, in the case of transmitting a MAC frame to other station node, transmits a RPR MAC frame in which a MAC address of the other station node is set as a destination MAC address, and transmits, in the case of transmitting a MAC frame to a station accommodated to a bridge node and located in the outside of the ringlets, a RPR MAC frame into which the MAC frame is encapsulated in such a state that the bridge node can capture the MAC frame,

each of the bridge nodes, in the case of receiving, from a station accommodated to the bridge node itself and located in the outside of the ringlets, the MAC frame in which a MAC address of a station accommodated to other bridge node and located in the outside of the ringlets is set as a destination address, transmits a RPR MAC frame into which the MAC frame is encapsulated in such a state that the other bridge node can capture the RPR MAC frame, and, in the case of receiving, from a station accommodated to the bridge node itself, a MAC frame in which a MAC address of a station node is set as a destination MAC address, converts the MAC frame into a RPR MAC frame and transmits the RPR MAC frame, each of the station nodes captures the RPR MAC frame that the MAC frame is not encapsulated, and

each of the bridge nodes captures the RPR MAC frame into which the MAC frame is encapsulated, and transmits the MAC frame within the captured RPR MAC frame to a station accommodated to the bridge node itself and located in the outside of the ringlets.

2. A RPR network system according to claim 1, wherein each of the station nodes and each of the bridge nodes have a table registered with the MAC addresses of all the station nodes and bridge nodes connected to the ringlets,

each of the station nodes, in the case of transmitting a MAC frame, converts the MAC frame into a RPR MAC format and transmits the RPR MAC frame if a destination MAC address of the MAC frame is registered in the table, and transmits a RPR MAC frame into which the MAC frame is encapsulated if the destination MAC address is not registered in the table, and

each of the bridge nodes, in the case of forwarding a MAC frame received from a station accommodated to the bridge node itself and located in the outside of the ringlets, transmits the MAC frame converted into a RPR MAC frame format if a destination MAC address of the MAC frame is registered in the table, and transmits a RPR MAC frame into which the MAC frame is encapsulated if the destination MAC address is not registered in the table.

3. A RPR network system according to claim 2, wherein each of the station nodes and each of the bridge nodes have a mapping table stored with correspondence between a MAC address of each bridge node and a MAC address of a station accommodated to each bridge node and located in the outside of the ringlets, and

each of the station nodes and each of the bridge nodes, in the case of transmitting a RPR MAC frame into which a MAC frame is encapsulated, if a MAC address of a

bridge node corresponding to a destination MAC address of the MAC frame is stored in the mapping table, set the MAC address of the bridge node for a destination MAC address of the RPR MAC frame.

4. A RPR network system according to claim 3, wherein each of the station nodes and each of the bridge nodes retain a multicast address that all the bridge nodes belong to a group of the multicast address, and

each of the station nodes and each of the bridge nodes, in the case of transmitting a RPR MAC frame into which a MAC frame is encapsulated, if a MAC address of a bridge node corresponding to a destination MAC address of the MAC frame is not stored in the mapping table, set the multicast address for a destination MAC address of the RPR MAC frame.

5. A RPR network system according to claim 3, wherein each of the bridge nodes, in the case of transmitting a RPR MAC frame into which a MAC frame is encapsulated and in which a MAC address of a bridge node corresponding to a destination MAC address of the MAC frame is set for a destination MAC address of thereof, sets a MAC address of the bridge node itself for a source MAC address of the RPR MAC frame, and

the station node and/or the bridge node and forwarding the RPR MAC frame into which the MAC frame transmitted from the bridge node is encapsulated, stores the mapping table with correspondence between a source MAC address of the RPR MAC frame and a source MAC address of the MAC frame within the RPR MAC frame.

6. A bridge node located, together with a plurality of station nodes terminating media access control (MAC) frames and another bridge node, in one or more ringlets constructing a resilient packet ring (RPR) network, comprising:

a receiving unit operable to receive a MAC frame from a station located on outside of the ringlets;

a determining unit operable to determine whether a destination MAC address of the MAC frame received by the receiving unit indicates a MAC address of another station accommodated to the other bridge node or a MAC address of one of the plurality of station nodes;

a transmitting unit operable to transmit to the other bridge node an RPR MAC frame into which the MAC frame is encapsulated in such a state that the other bridge node can capture the RPR MAC frame if the destination MAC address indicates the MAC address of the other station, and operable to transmit to the one of the plurality of station nodes an RPR MAC frame obtained by conversion of the MAC frame if the destination address indicates the MAC address of the one of the plurality of station nodes.

7. A bridge node according to claim 6, wherein the bridge node has a table registered with MAC addresses of all the station nodes and bridge nodes connected to the ringlets, and the bridge node, in the case of forwarding a MAC frame received from the station, converts the MAC frame into a RPR MAC frame and transmits the RPR MAC frame if a destination MAC address of the MAC frame is registered in the table, and transmits a RPR MAC frame into which the MAC frame is encapsulated if the destination MAC address of the MAC frame is not registered in the table.

8. A bridge node according to claim 7, wherein the bridge node further has a mapping table stored with correspondence between the MAC addresses of the bridge nodes and a MAC address of a station located in the outside of the ringlets and accommodated to the bridge nodes, and

①
bridge

27

the bridge node, in the case of transmitting a RPR MAC frame into which a MAC frame is encapsulated, if a MAC address of a bridge node corresponding to a destination MAC address of the MAC frame is stored in the mapping table, sets the MAC address of the bridge node for a destination MAC address of the RPR MAC frame.

9. A bridge node according to claim 8, wherein the bridge node retains a multicast address that all the plurality of bridge nodes belong to a group of the multicast address, and the bridge node, in the case of transmitting a RPR MAC frame into which a MAC frame is encapsulated, if a MAC address of a bridge node corresponding to a destination MAC address of the MAC frame is not stored in the mapping table, sets the multicast address for a destination MAC address of the RPR MAC frame.

10. A bridge node according to claim 8, wherein the bridge node, in the case of forwarding a RPR MAC frame transmitted from other bridge node, wherein the RPR MAC frame has an encapsulated MAC frame, has a MAC address of a bridge node corresponding to a destination MAC address of the encapsulated MAC frame as a destination MAC address thereof, and has a MAC address of other bridge node as a source MAC address thereof, stores the mapping table with correspondence between the source MAC address of the RPR MAC frame and the source MAC address of the encapsulated MAC frame.

11. A station node located, together with a plurality of bridge nodes forwarding a media access control (MAC) frame and another station node, on one or more ringlets constructing a resilient packet ring (RPR) network, comprising:

a determining unit operable to determine, upon transmitting a MAC frame, whether a destination of the MAC frame is the other station node or a station located on outside of the ringlets and accommodated to one of the plurality of bridge nodes; and

a transmitting unit operable to transmit to the other station node an RPR MAC frame obtained by conversion of the MAC frame and having a destination MAC address indicating the other station node if the destination is the other station node, and operable to transmit to the one of the plurality of bridge nodes an RPR MAC frame into which the MAC frame is encapsulated in such a state that the one of the plurality of bridge nodes can capture the RPR MAC frame if the destination is the station so that the one of the plurality of bridge nodes captures the RPR MAC frame to transmit to the other station the MAC frame in the RPR MAC frame.

12. A station node according to claim 11, wherein the station node has a table registered with MAC addresses of all the station nodes and bridge nodes connected to the ringlets, and

the station node, in the case of transmitting a MAC frame, converts the MAC frame into a RPR MAC frame and transmits the RPR MAC frame if a destination MAC address of the MAC frame is registered in the table, and transmits a RPR MAC frame into which the MAC frame is encapsulated if the destination MAC address of the MAC frame is not registered in the table.

13. A station node according to claim 12, wherein the station node further has a mapping table stored with correspondence between a MAC address of each bridge node and a MAC address of a station accommodated to each bridge node and located in the outside of the ringlets, and

the station node, in the case of transmitting a RPR MAC frame into which a MAC frame is encapsulated, if a MAC address of a bridge node corresponding to a destination MAC address of the MAC frame is stored in the

mapping table, sets the MAC address of the bridge node for a destination MAC address of the RPR MAC frame.

14. A station node according to claim 13, wherein the station node retains a multicast address that all the bridge nodes belong to a group of the multicast address, and the station node, in the case of transmitting a RPR MAC frame into which a MAC frame is encapsulated, if a MAC address of a bridge node corresponding to a destination MAC address of the MAC frame, sets the multicast address for a destination MAC address of the RPR MAC frame.

15. A station node according to claim 13, wherein the station node, in the case of forwarding a RPR MAC frame transmitted from other bridge node, wherein the RPR MAC frame has an encapsulated MAC frame, has a MAC address of a bridge node corresponding to a destination MAC address of the MAC frame as a destination MAC address thereof, and has a MAC address of other bridge node as a source MAC address thereof, stores the mapping table with correspondence between the source MAC address of the RPR MAC frame and the source MAC address of the encapsulated MAC frame within the RPR MAC frame.

16. A resilient packet ring (RPR) card installed into a bridge node located, together with a plurality of station nodes terminating a media access control (MAC) frame and another bridge node, on one or more ringlets constructing a RPR network, comprising:

a receiving unit operable to receive a MAC frame from a station located on outside of the ringlets;

a determining unit operable to determine whether a destination MAC address of the MAC frame received by the receiving unit indicates a MAC address of another station accommodated to the other bridge node or a MAC address of one of the plurality of station nodes;

a transmitting unit operable to transmit to the other bridge node an RPR MAC frame into which the MAC frame is encapsulated in such a state that the other bridge node can capture the RPR MAC frame when the destination MAC address indicates the MAC address of the other station, and to transmit to the one of the plurality of station nodes an RPR MAC frame obtained by conversion of the MAC frame when the destination address indicates the MAC address of the one of the plurality of station nodes.

17. A RPR card according to claim 16, wherein the RPR card has a table registered with correspondence between MAC addresses of all the station nodes and bridge nodes connected to the ringlets, and

the RPR card, in the case of forwarding a MAC frame received from the station, converts the MAC frame into a RPR MAC frame and transmits the RPR MAC frame if a destination MAC address of the MAC frame is registered in the table, and transmits a RPR MAC frame into which the MAC frame is encapsulated if the destination MAC address of the MAC frame is not registered in the table.

18. A RPR card according to claim 17, wherein the RPR card further has a mapping table stored with correspondence between a MAC address of each bridge node and a MAC address of a station located in the outside of the ringlets and accommodated to each bridge node, and

the RPR card, in the case of transmitting a RPR MAC frame into which a MAC frame is encapsulated, if a MAC address of a bridge node corresponding to a destination MAC address of the MAC frame is stored in the

② →

X: station

O: station

③ ↗

of bridge

unit

← ④

Attorney Docket No.: FUJY 20.945 (100794-00557)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor: Masanori Hashimoto
Confirmation No.: 5602
Serial No.: 10/773,769
Filed: February 6, 2004
Title: A RESILIENT PACKET RING NETWORK FOR REALIZING MAC
BRIDGING (As Amended Herein)
Examiner: Hong Sol Cho
Group Art Unit: 2619

March 10, 2008

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT

Sir:

In response to the Office Action dated November 27, 2007, a petition is submitted herewith requesting a one-month extension of time, extending the period for response to March 27, 2008. Please amend the above-identified application as follows:

IN THE CLAIMS

1. (Previously Presented) A resilient packet ring (RPR) network system in a RPR network, comprising:

a plurality of station nodes terminating media access control (MAC) frames; and

a plurality of bridge nodes forwarding MAC frames, in which both of the plurality of station nodes and the plurality of bridge nodes are located in one or more ringlets,

wherein each of the station nodes, in the case of transmitting a MAC frame to other station node, transmits a RPR MAC frame in which a MAC address of the other station node is set as a destination MAC address, and transmits, in the case of transmitting a MAC frame to a station accommodated to a bridge node and located in the outside of the ringlets, a RPR MAC frame into which the MAC frame is encapsulated in such a state that the bridge node can capture the MAC frame,

each of the bridge nodes, in the case of receiving, from a station accommodated to the bridge node itself and located in the outside of the ringlets, the MAC frame in which a MAC address of a station accommodated to other bridge node and located in the outside of the ringlets is set as a destination address, transmits a RPR MAC frame into which the MAC frame is encapsulated in such a state that the other bridge node can capture the RPR MAC frame, and, in the case of receiving, from a station accommodated to the bridge node itself, a MAC frame in which a MAC address of a station node is set as a destination MAC address, converts the MAC frame into a RPR MAC frame and transmits the RPR MAC frame,

each of the station nodes captures the RPR MAC frame that the MAC frame is not encapsulated, and

each of the bridge nodes captures the RPR MAC frame into which the MAC frame is encapsulated, and transmits the MAC frame within the captured RPR MAC frame to a station accommodated to the bridge node itself and located in the outside of the ringlets.

2. (Original) A RPR network system according to claim 1, wherein each of the station nodes and each of the bridge nodes have a table registered with the MAC addresses of all the station nodes and bridge nodes connected to the ringlets,

each of the station nodes, in the case of transmitting a MAC frame, converts the MAC frame into a RPR MAC format and transmits the RPR MAC frame if a destination MAC address of the MAC frame is registered in the table, and transmits a RPR MAC frame into which the MAC frame is encapsulated if the destination MAC address is not registered in the table, and

each of the bridge nodes, in the case of forwarding a MAC frame received from a station accommodated to the bridge node itself and located in the outside of the ringlets, transmits the MAC frame converted into a RPR MAC frame format if a destination MAC address of the MAC frame is registered in the table, and transmits a RPR MAC frame into which the MAC frame is encapsulated if the destination MAC address is not registered in the table.

3. (Original) A RPR network system according to claim 2, wherein each of the station nodes and each of the bridge nodes have a mapping table stored with correspondence between a MAC address of each bridge node and a MAC address of a station accommodated to each bridge node and located in the outside of the ringlets, and

each of the station nodes and each of the bridge nodes, in the case of transmitting a RPR MAC frame into which a MAC frame is encapsulated, if a MAC address of a bridge node

corresponding to a destination MAC address of the MAC frame is stored in the mapping table, set the MAC address of the bridge node for a destination MAC address of the RPR MAC frame.

4. (Original) A RPR network system according to claim 3, wherein each of the station nodes and each of the bridge nodes retain a multicast address that all the bridge nodes belong to a group of the multicast address, and

each of the station nodes and each of the bridge nodes, in the case of transmitting a RPR MAC frame into which a MAC frame is encapsulated, if a MAC address of a bridge node corresponding to a destination MAC address of the MAC frame is not stored in the mapping table, set the multicast address for a destination MAC address of the RPR MAC frame.

5. (Original) A RPR network system according to claim 3, wherein each of the bridge nodes, in the case of transmitting a RPR MAC frame into which a MAC frame is encapsulated and in which a MAC address of a bridge node corresponding to a destination MAC address of the MAC frame is set for a destination MAC address of thereof, sets a MAC address of the bridge node itself for a source MAC address of the RPR MAC frame, and

the station node and/or the bridge node and forwarding the RPR MAC frame into which the MAC frame transmitted from the bridge node is encapsulated, stores the mapping table with correspondence between a source MAC address of the RPR MAC frame and a source MAC address of the MAC frame within the RPR MAC frame.

6. (Currently Amended) A bridge node located, together with a plurality of station nodes terminating media access control (MAC) frames and another bridge node, in one or more ringlets constructing a resilient packet ring (RPR) network, comprising:

~~wherein the bridge node, in the case of receiving the MAC frame transmitted from a station being located in the outside of the ringlets and in which a MAC address of other station located in the outside of the ringlets and accommodated to other bridge node connected to the ringlets is set for a destination MAC address, transmits a RPR MAC frame into which the MAC frame is encapsulated in such a state that the other bridge node can capture the RPR MAC frame, and~~

~~the bridge node, in the case of receiving a MAC frame in which a MAC address of a station node is set for a destination MAC address from the station, converts the MAC frame into a RPR MAC frame and transmits the RPR MAC frame~~

a receiving unit operable to receive a MAC frame from a station located on outside of the ringlets;

a determining unit operable to determine whether a destination MAC address of the MAC frame received by the receiving unit indicates a MAC address of another station accommodated to the other bridge node or a MAC address of one of the plurality of station nodes;

a transmitting unit operable to transmit to the other bridge node an RPR MAC frame into which the MAC frame is encapsulated in such a state that the other bridge node can capture the RPR MAC frame if the destination MAC address indicates the MAC address of the other station, and operable to transmit to the one of the plurality of station nodes an RPR MAC frame obtained by conversion of the MAC frame if the destination address indicates the MAC address of the one of the plurality of station nodes.

7. (Original) A bridge node according to claim 6, wherein the bridge node has a table registered with MAC addresses of all the station nodes and bridge nodes connected to the ringlets, and the bridge node, in the case of forwarding a MAC frame received from the station, converts the MAC frame into a RPR MAC frame and transmits the RPR MAC frame if a destination MAC address of the MAC frame is registered in the table, and transmits a RPR MAC frame into which the MAC frame is encapsulated if the destination MAC address of the MAC frame is not registered in the table.

8. (Original) A bridge node according to claim 7, wherein the bridge node further has a mapping table stored with correspondence between the MAC addresses of the bridge nodes and a MAC address of a station located in the outside of the ringlets and accommodated to the bridge nodes, and

the bridge node, in the case of transmitting a RPR MAC frame into which a MAC frame is encapsulated, if a MAC address of a bridge node corresponding to a destination MAC address of the MAC frame is stored in the mapping table; sets the MAC address of the bridge node for a destination MAC address of the RPR MAC frame.

9. (Original) A bridge node according to claim 8; wherein the bridge node retains a multicast address that all the plurality of bridge nodes belong to a group of the multicast address, and the bridge node, in the case of transmitting a RPR MAC frame into which a MAC frame is encapsulated, if a MAC address of a bridge node corresponding to a destination MAC address

of the MAC frame is not stored in the mapping table, sets the multicast address for a destination MAC address of the RPR MAC frame.

10. (Original) A bridge node according to claim 8, wherein the bridge node, in the case of forwarding a RPR MAC frame transmitted from other bridge node, wherein the RPR MAC frame has a encapsulated MAC frame, has a MAC address of a bridge node corresponding to a destination MAC address of the encapsulated MAC frame as a destination MAC address thereof, and has a MAC address of other bridge node as a source MAC address thereof, stores the mapping table with correspondence between the source MAC address of the RPR MAC frame and the source MAC address of the encapsulated MAC frame.

11. (Currently Amended) A station node located, together with a plurality of bridge nodes

→ forwarding a media access control (MAC) frame and another station node, in on one or more ringlets constructing a resilient packet ring (RPR) network, comprising:

—— wherein the station node, in the case of transmitting a MAC frame transmitted to other station node connected to the ringlets, transmits a RPR MAC frame in which a MAC address of the other station node is set for a destination MAC address, and

—— the station node, in the case of transmitting a MAC frame to a station accommodated to a bridge node and located in the outside of the ringlets, transmits a RPR MAC frame into which the MAC frame is encapsulated in such a state that the bridge node can capture the RPR MAC frame

a determining unit operable to determine, upon transmitting a MAC frame, whether a destination of the MAC frame is the other station node or a station located on outside of the ringlets and accommodated to one of the plurality of bridge nodes; and

a transmitting unit operable to transmit to the other station node an RPR MAC frame obtained by conversion of the MAC frame and having a destination MAC address indicating the other station node if the destination is the other station node, and operable to transmit to the one of the plurality of bridge nodes an RPR MAC frame into which the MAC frame is encapsulated in such a state that the one of the plurality of bridge nodes can capture the RPR MAC frame if the destination is the station so that the one of the plurality of bridge nodes captures the RPR MAC frame to transmit to the other station the MAC frame in the RPR MAC frame.

12. (Original) A station node according to claim 11, wherein the station node has a table registered with MAC addresses of all the station nodes and bridge nodes connected to the ringlets, and

the station node, in the case of transmitting a MAC frame, converts the MAC frame into a RPR MAC frame and transmits the RPR MAC frame if a destination MAC address of the MAC frame is registered in the table, and transmits a RPR MAC frame into which the MAC frame is encapsulated if the destination MAC address of the MAC frame is not registered in the table.

13. (Original) A station node according to claim 12, wherein the station node further has a mapping table stored with correspondence between a MAC address of each bridge node and a MAC address of a station accommodated to each bridge node and located in the outside of the ringlets, and

the station node, in the case of transmitting a RPR MAC frame into which a MAC frame is encapsulated, if a MAC address of a bridge node corresponding to a destination MAC address of the MAC frame is stored in the mapping table, sets the MAC address of the bridge node for a destination MAC address of the RPR MAC frame.

14. (Original) A station node according to claim 13, wherein the station node retains a multicast address that all the bridge nodes belong to a group of the multicast address, and

the station node, in the case of transmitting a RPR MAC frame into which a MAC frame is encapsulated, if a MAC address of a bridge node corresponding to a destination MAC address of the MAC frame, sets the multicast address for a destination MAC address of the RPR MAC frame.

15. (Original) A station node according to claim 13, wherein the station node, in the case of forwarding a RPR MAC frame transmitted from other bridge node, wherein the RPR MAC frame has a encapsulated MAC frame, has a MAC address of a bridge node corresponding to a destination MAC address of the MAC frame as a destination MAC address thereof, and has a MAC address of other bridge node as a source MAC address thereof, stores the mapping table with correspondence between the source MAC address of the RPR MAC frame and the source MAC address of the encapsulated MAC frame within the RPR MAC frame.

16. (Currently amended) A resilient packet ring (RPR) card installed into a bridge node located, together with a plurality of station nodes terminating a media access control (MAC) frame and another bridge node, in-on one or more ringlets constructing a RPR network, comprising:

wherein the RPR card, in the case of receiving a MAC frame transmitted from a station located in the outside of the ringlets, wherein the MAC frame has a MAC address of other station located in the outside of the ringlets and accommodated to other bridge node on the ringlets as a destination MAC address thereof, transmits a RPR MAC frame into which the MAC frame is encapsulated in such a state that the other bridge node can capture the RPR MAC frame, and — the RPR card, in the case of receiving a MAC frame in which a MAC address of a station node is set in a destination MAC address from the station, converts the MAC frame into a RPR MAC frame and transmits the RPR MAC frame

a receiving unit operable to receive a MAC frame from a station located on outside of the ringlets;

→ a determining unit operable to determine whether a destination MAC address of the MAC frame received by the receiving unit indicates a MAC address of another station accommodated to the other bridge node or a MAC address of one of the plurality of station nodes;

a transmitting unit operable to transmit to the other bridge node an RPR MAC frame into which the MAC frame is encapsulated in such a state that the other bridge node can capture the RPR MAC frame when the destination MAC address indicates the MAC address of the other station, and to transmit to the one of the plurality of station nodes an RPR MAC frame obtained by conversion of the MAC frame when the destination address indicates the MAC address of the one of the plurality of station nodes.

17. (Original) A RPR card according to claim 16, wherein the RPR card has a table registered with correspondence between MAC addresses of all the station nodes and bridge nodes connected to the ringlets, and

the RPR card, in the case of forwarding a MAC frame received from the station, converts the MAC frame into a RPR MAC frame and transmits the RPR MAC frame if a destination MAC address of the MAC frame is registered in the table, and transmits a RPR MAC frame into which the MAC frame is encapsulated if the destination MAC address of the MAC frame is not registered in the table.

18. (Original) A RPR card according to claim 17, wherein the RPR card further has a mapping table stored with correspondence between a MAC address of each bridge node and a MAC address of a station located in the outside of the ringlets and accommodated to each bridge node, and

the RPR card, in the case of transmitting a RPR MAC frame into which a MAC frame is encapsulated, if a MAC address of a bridge node corresponding to a destination MAC address of the MAC frame is stored in the mapping table, sets the MAC address of the bridge node for a destination MAC address of the RPR MAC frame.

19. (Original) A RPR card according to claim 18, wherein the RPR card retains a multicast address that all the bridge nodes on the ringlets belong to a group of the multicast address, and

the RPR card, in the case of transmitting a RPR MAC frame into which a MAC frame is encapsulated, if a MAC address of a bridge node corresponding to a destination MAC address of the MAC frame is not stored in the mapping table, sets the multicast address for a destination MAC address of the RPR MAC frame.

20. (Original) A RPR card according to claim 18, wherein the RPR card, in the case of forwarding a RPR MAC frame transmitted from other bridge node, wherein the RPR MAC frame has a encapsulated MAC frame therein, has a MAC address of a bridge node corresponding to a destination MAC address of the MAC frame as a destination MAC address thereof, and has a MAC address of the other bridge node as a source MAC address thereof, stores the mapping table with correspondence between the source MAC address of the RPR MAC frame and a source MAC address of the encapsulated MAC frame within the RPR MAC frame.

21. (Previously Presented) A media access control (MAC) frame forwarding method for a bridge node located, together with a plurality of station nodes terminating MAC frames, in one or more ringlets constructing a resilient packet ring (RPR) network, said method comprising:

transmitting, in the case of receiving a MAC frame from a station, which is located in the outside of the ringlets, and in which a MAC address of other station, which is located in the outside of the ringlets and is accommodated to other bridge node connected to the ringlets, is set for a destination MAC address, a RPR MAC frame into which the MAC frame is encapsulated in such a state that the other bridge node can capture the RPR MAC frame; and

converting, in the case of receiving a MAC frame from the station in which a MAC address of a station node is set for a destination MAC address, the MAC frame into a RPR MAC frame and transmitting the RPR MAC frame.

22. (Previously Presented) A MAC frame forwarding method for a resilient packet ring (RPR) card installed into a bridge node located, together with a plurality of station nodes terminating

media access control (MAC) frames, in one or more ringlets constructing a RPR network, said method comprising:

transmitting, in the case of receiving a MAC frame from a station, which is located in the outside of the ringlets, and in which a MAC address of other station, which is located in the outside of the ringlets and is accommodated to other bridge node connected to the ringlets, is set for a destination MAC address thereof, a RPR MAC frame into which the MAC frame is encapsulated in such a state that the other bridge node can capture the RPR MAC frame, and

converting, in the case of receiving a MAC frame from the station in which a MAC address of a station node is set for a destination MAC address, the MAC frame into a RPR MAC frame and transmitting the RPR MAC frame.

REMARKS

Claim 1-22 are pending in this application. Claims 6, 11 and 16 have been amended. No new matter has been added by this amendment. The Examiner is thanked for indicating that claims 1-5, 21 and 22 are allowable.

In the office action, independent claims 6, 11 and 16 are rejected under 35 U.S.C. 112 first paragraph as a single means claim and rejected under 35 U.S.C. 112 second paragraph as being indefinite. Also, claims 7-10, 12-15 and 17-20 depend on claims 6, 11 and 16, respectively, are similarly rejected. The independent claims 6, 11 and 16 have been amended to overcome the rejections. Withdrawal of the rejections is respectfully requested.

Further, independent claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over “802.17 Frame Structure and Bridging Ad-Hoc Support” by Marc Holness et al. (hereinafter referred to as Holness) in view of Christensen et al (US 5349583, hereinafter referred to as Christensen).

Claim 11 as amended recites that “a determining unit operable to determine, upon transmitting a MAC frame, whether a destination of the MAC frame is the other station node or a station located on outside of the ringlets and accommodated to one of the plurality of bridge nodes” and “a transmitting unit operable to transmit to the other station node an RPR MAC frame obtained by conversion of the MAC frame and having a destination MAC address indicating the other station node if the destination is the other station node, and operable to transmit to the one of the plurality of bridge nodes an RPR MAC frame into which the MAC frame is encapsulated in such a state that the one of the plurality of bridge nodes can capture the RPR MAC frame if the destination is the station so that the one of the plurality of bridge nodes

captures the RPR MAC frame to transmit to the other station the MAC frame in the RPR MAC frame”.


It is respectfully submitted that the relied upon portions of the cited references Holness and Christensen do not teach or suggest the forgoing feature of Claim 11, as amended.

Accordingly, independent claim 11 patentably distinguish over Holness in view of Christensen is allowable. Claims 12-15 that depend from the allowable claim 11 are allowable therewith.

In view of the remarks set forth above, this application is in condition for allowance which action is respectfully requested. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number of listed below prior to issuing a further Action.

Any fee due with this paper may be charged to Deposit Account No. 50-1290.

Respectfully submitted,

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Docket No.: FUJY 20.954(100794-00557)
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